

REMARKS

The application includes claims 1-24 prior to entering this amendment.

Claims 1-24 were rejected.

The Applicant amends claims 1-24.

The Applicant adds new claims 25-27. No new matter is added.

Claim Rejections - 35 U.S.C. § 102

The Examiner rejected claims 1-2, 4, 9-10, and 15-21 under 35 U.S.C. § 102(b) over Johnson (U.S. Patent 5,483,053).

The rejection is traversed; however, Applicant amends claims 1-2, 4, 9-10, and 15-21 to expedite prosecution. For example, amended claim 1 recites a sensing method for a scanner, wherein the scanner comprises an image sensor, and wherein the image sensor comprises a first row of sensors and a second row of sensors, the sensing method comprising:

- scanning a first document portion with the first row of sensors and concurrently scanning a second document portion with the second row of sensors, wherein the first and the second document portions are not adjacent to each other;

- scanning a third document portion with the first row of sensors and concurrently scanning a fourth document portion with the second row of sensors, wherein the third document portion partially overlaps the first document portion;
- and

- processing first scanned image data associated with the first document portion and second scanned image data associated with the third document portion to generate third image data of the partially overlapped document portion, wherein a resolution of the third image data is greater than a resolution of at least one of the first scanned image data and the second scanned image data.

Johnson, on the other hand, describes a method of scanning an object at a predetermined resolution, wherein an exposure period of linear photosensors is delayed in order to compensate for a color shift of the photosensors (Abstract, col. 3 lines 22-26). The color shift occurs when the predetermined resolution is greater than a native scanning resolution (col. 9 lines 36-62).

Johnson's linear photosensors are described as comprising two, three, four or more stripes of a charge coupled device that detect different colors of light, such as red, green, and blue (col. 7 lines 3-13). Johnson fails to disclose processing first scanned image data associated with the first document portion and second scanned image data associated with the third document portion to generate third image data of the partially overlapped document portion,

wherein a resolution of the third image data is greater than a resolution of at least one of the first scanned image data and the second scanned image data, as recited by claim 1. In Johnson, the output of three linear photosensors is combined to form the complete color image (col. 9 lines 19-25). The resolution of the color image, is determined according to a scan resolution of scan switch 60, which determines a corresponding scan speed (col. 5 lines 52-54) of the linear photosensors. Accordingly, the combination of the output of the linear photosensors of Johnson does not have any relationship to the resolution of the color image.

Furthermore, Johnson does not disclose wherein the third document portion partially overlaps the first document portion, as recited by claim 1. As illustrated in Figure 9(a) and 9(c) of Johnson, the output from each linear photosensor completely aligns with the output from the other linear photosensors. Johnson in fact expressly identifies that a pattern with non-aligned photosensor output, as shown in Figure 9(b), is to be avoided as this introduces an undesirable color shift problem (col. 9 lines 36-62). Additionally, the exposure time for the output of each photosensor of Johnson is delayed (col. 5 lines 54-64), such that Johnson fails to disclose scanning a third document portion with the first row of sensors and concurrently scanning a fourth document portion with the second row of sensors, as recited by claim 1. Since the exposure time is delayed, the output of Johnson is not scanned concurrently.

Claims 2, 4, 9-10, and 15-21 are believed to be allowable for similar reasons as provided above with respect to claim 1, in addition to the further novel features recited therein. Accordingly, withdrawal of the rejection of claims 1, 2, 4, 9-10, and 15-21 is respectfully requested.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 3, 5-8, and 11-14 under 35 U.S.C. § 103(a) over Johnson and variously in view of Teeter (U.S. Patent 4,451,030), Shimizu (U.S. Patent 5,777,308) and Boyd (U.S. Patent 6,166,831).

The rejection is traversed; however, Applicant amends claims 3, 5-8, and 11-14 to expedite prosecution. For example, amended claim 11 recites a method, comprising:

scanning concurrently a first portion and a second portion of a document using a first row of sensors for the first document portion and a second row of sensors for the second document portion, wherein the first and second document

portions are not adjacent to each other, and wherein the first and second rows of sensors are spaced apart from each other;

scanning concurrently a third portion and a fourth portion of a document using the first row of sensors for the third document portion and the second row of sensors for the fourth document portion, wherein the third and first document portions partially overlap each other; and

processing scanned data associated with the first and third document portions from the first and second rows of sensors to produce image data for the partially overlapped document portion.

Claim 11 is believed to be allowable over Johnson for similar reasons as provided with respect to claim 1, above, in addition to the further novel features recited therein. Johnson fails to disclose scanning concurrently a first portion and a second portion of a document, scanning concurrently a third portion and a fourth portion of a document, or wherein the third and first document portions partially overlap each other. Accordingly, Johnson necessarily also fails to disclose processing scanned data associated with the first and third document portions from the first and second rows of sensors to produce image data for the partially overlapped document portion. Applicant respectfully submits that the further references of Teeter, Shimizu, and Boyd also fail to disclose the features of claim 11, and therefore fail to cure the deficiencies identified for Johnson.

Teeter describes a document storage area that assures a continuous supply of document material to the document output device (Abstract). Teeter's processing of data is conventional; Teeter instead being directed to solving problems associated with the physical manipulation of a document feeder (col. 1 lines 43-60). Accordingly, Teeter would also not be understood to disclose processing scanned data associated with the first and third document portions from the first and second rows of sensors to produce image data for the partially overlapped document portion, in addition to the further novel features recited by claim 11.

Shimizu describes a method of providing an increased resolution for interpreting bar code symbols by sampling along a diagonal line of a two-dimensional bar code (Abstract). The diagonal line is used to determine a width of the bar code more accurately than that based on a horizontal line count of pixels, where a boundary error of the measured region may be introduced (col. 5 lines 6-45). Applicant respectfully submits that Shimizu is not combinable with Johnson, as Shimizu is directed to reading bar codes. However, even if Shimizu were combined with Johnson, the combination would still fail to disclose processing scanned data associated with the

first and third document portions from the first and second rows of sensors to produce image data for the partially overlapped document portion, in addition to the further novel features recited by claim 11. Shimizu is simply silent as to any such processing of scanned data.

Boyd describes a spatially offset, row interpolated image sensor including a linear array sensor having a first row of longitudinally extending pixels and a second row of longitudinally extending pixels longitudinally staggered from the first row (Abstract).

Applicant respectfully submits that it would not be obvious to combine Johnson with Boyd. In fact, Boyd teaches away from such a combination. Boyd expressly states that “first and second rows 30, 32 ... are adjacent to each other.” Col. 2, lines 57-58. Further, Boyd provides the reasoning for such an orientation of adjacent rows: “Thus if the lateral spacing can be kept within that range, the two rows effectively function as one row.” Col. 3, lines 5-7. In other words, Boyd teaches that the rows have to be so close to each other that centers of the rows should be within one half of the pitch W of the pixel cells so that they can function as a singular row. Accordingly, Boyd teaches directly away from Johnson’s teaching that each row of sensors is spaced apart from each other row of sensors.

Johnson also teaches away from such a combination. As previously discussed, Johnson describes introducing an exposure delay to the photosensors such that their output aligns with each other according to the selected resolution setting (col. 3 lines 22-26, col. 9 lines 25-35 and lines 46-66 and Figure 9). Any non alignment of the output between the photosensors is describes as being undesirable (col. 9 lines 3-25 and lines 36-45, and Figure 9b). Hence, Johnson is not properly combinable with Boyd, even assuming that Boyd discloses document portions which partially overlap each other.

As Teeter, Shimizu and Boyd fail to cure the deficiencies of Johnson, claim 11 is believed to be allowable. Claims 3, 5-8, and 12-14 are believed to be allowable for similar reasons as claim 11, in addition to the further novel features recited therein.

Any statements made by Examiner that are not addressed by Applicant do not necessarily constitute agreement by the Applicant. In some cases, Applicant may have amended or argued the allowability of independent claims thereby obviating grounds for rejection of the dependent claims.

CONCLUSION

For the foregoing reasons, the Applicant respectfully requests reconsideration and allowance claims 1-27. The Examiner is encouraged to telephone the undersigned if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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